

REMARKS

Summary of Rejections and Amendments

Claims 1-10 and 12-28 are pending in the application, with claims 18-27 withdrawn from consideration. Claims 1-3 stand objected to because of informalities; claim 14 stands objected to as being of improper dependent form; claims 1, 4-10, 12, 13, 15-17, and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Schueler (U.S. 2,740,403) in view of Murphy (U.S. 5,762,623); and claims 1-10, 12-17, and 28 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over select claims of copending U.S. Patent Application No. 11/204,736.

With this response, claims 1-10 and 12-28 are canceled without prejudice, and claims 29-44 newly added, with claims 29-33 being independent. Additionally, a paragraph of the specification is amended. No new matter is added by amendment. After entering the amendments identified herein, claims 29-44 will be pending in the application. Entry of the identified amendments and reconsideration of the above identified application, in light of the remarks that follow, are respectfully requested.

Support for Amendments

Support for the new claims can be found throughout the specification. For example, new independent claim 29 recites, among other things, a porous adhesive-carrying fabric that, "after the application of adhesive thereto, [has] greater than about 60% open area." Support for this limitation can be found at least at original claim 9, which recites that the adhesive-carrying fabric has "more than 80% open area prior to application of the adhesive," in view of p. 14, lines 16-20 of the specification which states that, as a result of the application of the adhesive, "[t]he open area of the fabric is reduced by no more than about 20%, or even no more than about 10%." The specification makes clear that the area reduction referred to is the reduction in the overall open area of the fabric: "an open fabric that initially contains about 90% open area is reduced to about 80% open area upon coating with adhesive" (p. 14, lines 18-20). Thus, the specification supports an adhesive-carrying fabric having more than about 60% open area (a

20% reduction from an initial “more than 80% open area”) after application of adhesive, as is recited in claim 29.

New independent claim 30 recites, among other things, a porous adhesive-carrying fabric having “a thread count in at least one direction that is not more than 18 yarns per inch.” Page 11, lines 15-17 states that “[a]n exemplary warp knit/weft insertion fabric has a...warp/weft thread count ranging from about 18x12 to about 9x12.”

New independent claim 31 recites, among other things, a porous adhesive-carrying fabric, “after application of adhesive thereto, having an open area that is not more than about 10% to about 20% less than the open area of the fabric prior to the application of adhesive thereto.” As noted above, p. 14, lines 16-20 of the specification states that “[t]he open area of the fabric is reduced by no more than about 20%, or even no more than about 10%.”

New independent claim 32 recites, among other things, a porous adhesive-carrying fabric, “prior to application of adhesive thereto, having in the range of about 50% to about 95% open area.” Page 10, lines 18-21 states that “[t]he fabric can be up to about 95% open, i.e., 5% of surface area of the article is porous fabric, and is typically at least about 50% open.”

New independent claim 33 combines the above-quoted limitations from claim 31 and 32, reciting, among other things, a porous adhesive-carrying fabric “prior to the application of adhesive thereto having in the range of about 50% to about 95% open area, and after the application of adhesive thereto having an open area that is not more than about 10% to about 20% less than the open area of the fabric prior to the application of adhesive thereto.” As noted above, support for the limitations can be found at least at p. 14, lines 16-20 and p. 10, lines 18-21 of the specification.

Support for the limitations of new dependent claims 34-39, which define narrower ranges of, e.g., fabric open area before or after application of adhesive, and fabric thread count, can be found at least in the sections of the specification identified above.

Support for new dependent claim 40 can be found at least at original claim 12. Support for new dependent claim 41 can be found at least at original claims 4-7. Support for new

dependent claim 42 can be found at least at original claim 14. Support for new dependent claim 43 can be found at least at original claim 15. Support for new dependent claim 44 can be found at least at p. 12, lines 9-12.

The last sentence in the above-identified paragraph of the specification was deleted because it was potentially misleading. The sentence was based on a statement in U.S. Patent 2,740,403 (Schueler et al.) that the carrier fabric is impregnated with an adhesive “in such a manner that the treated fabric remains a substantially porous structure” (col. 1, lines 30-35). However, based on a full reading and understanding of Schueler, it is apparent that the adhesive coating substantially closes the pores of the carrier fabric; although Schueler discloses using differential air pressure, striking, stripping, or doctoring to increase the carrier’s porosity, the breathability of the bandage is not improved significantly.¹

Claim Objections

Claims 1-3 stand objected to because of informalities. Specifically, the Examiner objected to the use of the phrase “greater than 25% open area in structure.” Claims 1-3 have been canceled, and the newly added claims do not use this phrase, thus obviating the objection.

Claim 14 stands objected to as being of improper dependent form for failing to limit the subject matter of a previous claim. Claim 14 has been canceled, and applicants believe the newly added dependent claims are of proper dependent form, thus obviating the objection.

Claim Rejections - §103(a)

Claims 1, 4-10, 12, 13, 15-17 and 28 stand rejected under 35 U.S.C. §103(a) as being obvious over Schueler in view of Murphy. Applicant has canceled the rejected claims, and submits that new claims 29-44 are not obvious over Schueler in view of Murphy. Applicant submits herewith a Declaration under 37 C.F.R. §1.132, by Michael Miller of Andover Healthcare, in support of the nonobviousness of the new claims over Schueler in view of Murphy.

¹ Additionally, as shown in the Miller Declaration, coating a small-opening fabric such as Schueler’s effectively closes the openings but for a few “pin holes,” so that the coated fabric retains little, if any, of its porosity.

First, the relevant features and properties of the bandage disclosed by Schueler will be summarized. Then, some of the ways in which the instant claims distinguishes Schueler's bandages will be discussed.

Schueler

The Examiner equates Schueler's "backing" with the porous backing substrate of the claims, and equates Schueler's "carrier" with the "porous adhesive-carrying fabric" of the claims (Office Action, p. 4). Schueler discloses that the adhesive is applied to the carrier "in such a manner that the treated fabric remains a substantially porous fabric" (col. 1, lines 34-35) and "has the requisite" or "necessary porosity" (col. 2, lines 14-15 and 21). However, Schueler is silent as to what "requisite" or "necessary" or what "substantially porous" means.

Indeed, Schueler's bandage is, at best, minimally porous. This arises from the backing and carrier fabrics used to construct the bandage. Specifically, Schueler discloses that the backing has 100 yarns per inch, and openings of 0.005" on each side (col. 2, lines 44-46). The diameter of each yarn is therefore 0.005", and there is therefore 0.01" between the center of one opening and the center of the next opening. This results in a 25% open backing, calculated by dividing the open area of a unit cell of the fabric by the total area of that unit cell:

$$\frac{(0.005") \times (0.005")}{(0.01") \times (0.01")}$$

Schueler discloses that in some circumstances the yarns can even be swelled to close the open mesh of the weave (col. 4, lines 4-5). According to Schueler, it is simply necessary to leave "minute openings for porosity and for resisting the penetration of dirt from the exterior" (col. 4, lines 5-6). Thus, Schueler's backing may have some porosity, but it is designedly low so as to resist the penetration of dirt from the exterior. The low porosity of the backing will naturally limit the overall porosity of the bandage, i.e., the bandage cannot be more porous than the backing.

Schueler discloses that the carrier is a "similar fabric but more openly woven so that the spaces between the yarns have openings...of say some 0.01" side" (col. 2, lines 48-50). Schueler does not specifically disclose a yarn thickness, but Fig. 3 shows that the diameter of the

yarns are the same as that of the yarns in the backing. This being so, the center-to-center distance of the openings is 0.015", and the fabric has a thread count of about 67 yarns per inch. Therefore, the carrier is about 44% open, calculated by dividing the open area of a unit cell of the fabric by the total area of that unit cell:

$$\frac{(0.01") \times (0.01")}{(0.015") \times (0.015")}$$

Note that this is the porosity before the adhesive is applied to the carrier. Schueler is silent as to how porous or open the carrier is after the adhesive is applied to the fabric. Schueler discloses using differential air pressure, striking, stripping, or doctoring to improve carrier porosity, but is silent as to what the resulting porosity might be. However, the porosity of the carrier after application of the adhesive, even with additional treatment, necessarily can be no more than that of the carrier before application of the adhesive, i.e., will not be greater than 44% open. In fact, it is in reality far less.

Michael Miller's Declaration shows that Schueler's carrier, when impregnated, loses nearly all of its porosity. More specifically, the Declaration shows that impregnation of a woven cotton fabric comparable to the carrier disclosed by Schueler with a water based pressure sensitive adhesive almost completely closes the fabric's openings or pores (See Miller Declaration, ¶ 12). Because the inter-yarn openings in Schueler's carrier are so small, coating or impregnating the carrier with adhesive effectively closes the openings, and results in an adhesive carrier that has little open area or porosity. As the Declaration discusses, several factors that result from the small carrier openings can contribute to the closing of pores when impregnated with adhesive, including bridging of openings/pores by stray fibers and the swelling of yarns (See Miller Declaration, ¶ 12). Because the openings are small to begin with, the presence of even a small coating of adhesive on the surface of the yarns can significantly reduce their size and thus reduce the porosity of the coated fabric.

Claims

In contrast, the instantly claimed articles are highly porous, truly and effectively "breathable," and thus allow moisture to vent away from the skin and allow air to contact the skin. In sharp contrast, the bandages disclosed by Schueler have minimal porosity at best, as

evidenced both by Schueler's disclosure and by Michael Miller's Declaration. The instant claims reflect at least some of the structural features that give rise to such heightened porosity compared to that of Schueler's bandage. They are not anticipated by Schueler, and it would not be obvious to modify Schueler or combine Schueler with Murphy in such a way as to provide the specific requirements of the now-pending claims.

As discussed in more detail below, Schueler, alone or modified, does not teach or suggest:

- a. A porous adhesive-coated fabric that, after the application of adhesive thereto, has at least about 60% open area. (Claim 29. After coating, the open area of Schueler's carrier is negligible).
- b. A porous adhesive-coated fabric that has a thread count in at least one direction that is not more than 18 yarns per inch. (Claim 30. Schueler has more than 66 yarns per inch; and, thus, far smaller openings in the fabric).
- c. A porous adhesive-coated fabric that, after the application of adhesive thereto, has an open area that is not more than about 10% to about 20% less than the open area of the fabric prior to the application of adhesive thereto; e.g., if the fabric is 80% open before adhesive is applied to it, it is not less than about 60% to about 70% open after the adhesive has been applied. (Claim 31. Schuler's adhesive greatly decreases the open area; the amount is unstated but it is far more than 20%).
- d. A porous adhesive-coated fabric that, prior to the application of adhesive thereto, has in the range of about 50% to about 95% open area (Claim 32. The only carrier Schueler mentions is 44% open; and there is no suggestion that any more open carrier might be used).
- e. A porous adhesive-coated fabric that, prior to application of adhesive thereto has in the range of about 50% to about 95% open area, and after the application of adhesive thereto has an open area that is not more than about 10% to about 20% less than the open area of the fabric prior to the application of adhesive thereto. (Claim 33. Schueler starts with a fabric that is 44% open and the applied adhesive reduces the open area by far more than 20%).

Turning first to claim 29, Schueler does not teach or suggest an article that includes a porous backing substrate and "a porous adhesive-carrying fabric applied to the backing substrate, the fabric, after application of adhesive thereto, having greater than about 60% open area." The Examiner's rejections of the previous claims appear to have been based on the assumption that Schueler's carrier, when coated with adhesive, would "inherently" remain

porous. However, as Michael Miller's Declaration shows, this assumption was not correct. Impregnation of Schueler's carrier with an adhesive would not result in a fabric that "inherently" remains porous; neither would it result in a fabric having "greater than about 60% open area," as required by claim 29. Instead, impregnation of Schueler's carrier (which was only 44% open to begin with) with an adhesive almost completely closes the 0.01" x 0.01" openings, reducing a majority of them to "pin holes" (Miller Declaration, ¶ 12). Even if Schueler's adhesive-coated carrier were post-treated using air pressure, stripping, or doctoring to attempt to re-open any closed openings (col. 2, lines 11-12), it would still be limited to an openness no greater than the openness of the bare carrier, i.e., would be 44% open at most. Note that the instantly claimed adhesive-carrying fabric need not be subsequently treated in order to be highly breathable and porous (Miller Declaration, ¶15).

Moreover, nothing in the cited art provides any motivation or reason for one of skill in the art to modify Schueler's carrier, and likely also the manner in which adhesive was applied to it, in such a way that it would have the claimed "greater than 60% open area" after application of adhesive. Indeed, Schueler teaches precisely the contrary. According to Schueler, a fabric that is only 44% open before coating, and that in reality loses much of its porosity when coated is fully satisfactory, i.e., is "substantially porous" (col. 2, line 7). Additionally, Schueler's disclosed backing layer is only 25% open, and may be designed to have only "minute openings" in order to provide some porosity, but also to resist the penetration of dirt from the exterior (col. 4, lines 5-6). Since, as noted above, the porosity of the backing layer limits the porosity of the entire bandage, the bandage as a whole cannot be more open than its least porous layer. Therefore, any attempt to increase the porosity of the carrier layer to a level greater than that of the backing layer would not improve the porosity of the bandage whatsoever. Because of this, there is no reason or motivation to combine Schueler's 25% open or "minute openings" backing layer with an adhesive-coated carrier that was more open than the backing, and particularly not with a carrier that was so porous that it had greater than 60% open area after application of adhesive thereto – more than twice as porous as Schueler's backing and significantly more porous than any carrier disclosed by Schueler – as recited in claim 29. Schueler failed to appreciate that his adhesive-coated carrier, in combination with his limiting backing layer, had far too little open area to provide a truly breathable bandage.

Thus, applicants submit that claim 29, and claims depending therefrom, are neither anticipated by nor obvious over Schueler or any modification thereof.

Claim 30 is directed to another structural feature of applicant's article that is nowhere taught or suggested by Schueler or any modification thereof. It recites, among other things, a porous adhesive-carrying fabric having "a thread count in at least one direction that is not more than 18 yarns per inch." Thread count is directly related to the size of the openings in the fabric, both prior to and after coating with adhesive. As discussed above, Schueler discloses a carrier having about 67 yarns per inch, about 3.7 times higher than that recited in the claim, and openings that, even prior to coating with adhesive, are only 0.01 inches on a side. Michael Miller's Declaration demonstrates that an 18 x 18 fabric (Schueler's is 67 x 67) has far larger openings before coating and that such a fabric remains highly porous when coated with adhesive, thus providing highly breathable articles (See Miller Declaration, ¶ 15). Additionally, one would not be motivated to modify Schueler's carrier to have such a significantly lower thread count. First, Schueler expressly discloses that his 67 x 67 fabric provides "sufficient porosity." Second, the overall porosity of Schueler's bandage is limited by that of the backing, so a reduction in thread count, and concomitant increase in the size of openings in the carrier, would have little or no effect on the overall porosity or breathability of the Schueler bandage. Thus, claim 30, and claims depending therefrom, are neither anticipated by nor obvious over Schueler.

Claim 31 recites, among other things, that the porous adhesive-carrying fabric, "after application of adhesive thereto, ha[s] an open area that is not more than about 10% to about 20% less than the open area of the fabric prior to the application of adhesive thereto." In the previous rejections, the Examiner said that the open area of Schueler's carrier would inherently be reduced by an equivalent amount as would Applicant's porous adhesive-carrying fabric when adhesive is applied. This is not so. As Michael Miller's Declaration demonstrates, the open area of Schueler's high-thread-count-small-opening carrier is significantly reduced when adhesive is applied – far more than 20% and, but for pin-holes, essentially to zero (See Miller Declaration, ¶ 12). Therefore, far from resulting in an open area "equivalent" to that of Applicants' and contrary to the Examiner's apparent belief, the structural features of Schueler's carrier actually inherently prevent the fabric from satisfying claim 31. Further, except for disclosing that

“minute openings” are apparently enough, Schueler provides absolutely no teaching or suggestion regarding to which application of adhesive reduces, or should be permitted to reduce, the open area of his carrier, much less that the reduction should be limited to not more than about 10% to 20%, as recited in claim 31. Thus, claim 31, and claims depending therefrom, are neither anticipated by nor obvious over Schueler or any modification thereof.

Claim 32 recites, among other things, that the porous adhesive-carrying fabric “prior to application of adhesive thereto, ha[s] in the range of about 50% to about 95% open area.” As noted above, Schueler’s carrier has 44% open area, and thus does not satisfy claim 32. For reasons also discussed above, Schueler provides no reason or motivation to increase the open area of the carrier. Not only does Schueler disclose that his carrier is fully satisfactory, but the porosity of the bandage is limited by that of the backing; therefore, an increase in the open area of the carrier would not increase the porosity of the bandage but would serve only to reduce the adhesiveness of the bandage against the skin. Thus, claim 32, and claims depending therefrom, are neither anticipated by nor obvious over Schueler or any modification thereof.

Claim 33 is directed to how open the adhesive-carrying fabric is, both before and after it is coated with adhesive. The claim recites, among other things, a porous adhesive-carrying fabric “having in the range of about 50% to about 95% open area, and after the application of adhesive thereto having an open area that is not more than about 10% to about 20% less than the open area of the fabric prior to the application of adhesive thereto.” As noted above, Schueler’s carrier does not satisfy either the “before” or the “after” limitation. It has less than “about 50% to about 95% open area” before coating, and, as Michael Miller’s Declaration demonstrates, coating a carrier such as Schueler’s with adhesive reduces its open area by significantly more than 20%, a direct result of the carrier’s structural features, including its low initial open area and the size of the openings in it. Thus, claim 33, and claims depending therefrom, is neither anticipated by nor obvious over Schueler or any modifications thereof.

Based on the above, Applicant submits that the pending claims are not obvious over Schueler or any modification thereof. There are fundamental differences between Schueler’s bandage and the claimed articles, as described above and as shown in the Miller Declaration.

For completeness, Applicant submits that the previously pending claims were similarly non-obvious over Schueler or any modification thereof, and that the Examiner may not have appreciated the fundamental differences between Schueler's bandage, as discussed above, and the previously claimed articles.

Claim Rejections - Obviousness-Type Double Patenting

Claims 1-10, 12-17, and 28 stand provisionally rejected on the ground of nonstatutory obviousness-type double patenting over select claims of copending U.S. Patent Application No. 11/204,736. Applicant respectfully traverses the rejection on the basis that the claims of neither application are in their final form. If the Examiner finds the instant claims to be in condition for allowance other than for an obviousness-type double patenting rejection over one or more claims of 11/204,736, then Applicant will consider submitting a terminal disclaimer to obviate that rejection at that time.

Conclusion

In view of the above amendment, Applicant believes the pending application is in condition for allowance, and such action is respectfully requested.

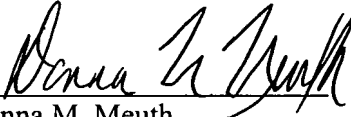
A petition for a three-month extension of time accompanies this Response, and the Commissioner is hereby authorized to charge the fee required for this extension to Deposit Account No. 08-0219. No other fees are believed to be due at this time. However, please charge any fees, or credit any overpayments, to Deposit Account No. 08-0219.

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Respectfully submitted,

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